

REMARKS

I. Status of the Claims

Claims 1-23 are pending.

Claims 9-15 are allowed.

Claims 1-5, 16, 22 and 23 are rejected.

Claims 6-8 and 17-21 are objected to as being dependent upon a rejected base claim.

The applicant notes with appreciation that the Examiner has indicated that claims 9-15 are allowed.

II. Rejection Under 35 U.S.C. 103

The Examiner has rejected claims 1-5, 16, 22 and 23 under 35 U.S.C. § 103(a) as being unpatentable over United States patent application publication No. 2004/0036976 of Grier *et al.* ("Grier") in view of United States patent application publication No. 2002/0108859 of Wang *et al.* ("Wang"). This rejection is traversed because the references Grier and Wang, either taken singly or in combination, do not disclose the invention as recited in independent claims 1 and 16.

More particularly, the Examiner states that Grier teaches "a method of removing particle(s) from matter comprising, an optical assembly of laser light source and lens system with a focal point coincident on the particle (fig. 1), the laser light having sufficient power at the focal point to form an optical trap for the particle and removing the particle from said matter (paragraph 29). The particle having a diameter of less than 1 micron (paragraph 43)." The Examiner then states that the Grier reference "lacks a lens system of numerical aperture greater than 0.8 used for determining positional coordinate of the particle, and solid matter" (emphasis added) which, the Examiner asserts, is disclosed in the Wang reference at paragraph 107.

In order for a combination of references to obviate a claimed invention, the references, when combined for purposes of 35 U.S.C. §103, must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ2d 580 (CCPA 1974). In this case, however, the Grier and the Wang references, either singly or in combination, do not disclose every claim limitations of the independent claims 1 and 16. First, referring to claim 1, claim 1 recites:

A process for removing contaminants from a surface of a semiconductor wafer, comprising:

- (a) providing a source of laser light and a lens system capable of focusing said laser light to a focal point;
- (b) *obtaining positional co-ordinates, on the wafer surface, for a particle;*
- (c) using said positional co-ordinates, placing the lens so that the focal point is directly in line with said particle and at a distance therefrom;
- (d) passing said laser light through the lens at a power level sufficient to form, at said focal point, an optical trap into which said particle is drawn; and then disposing of the particle whereby it is not returned to the wafer surface.

(Emphasis added). The Examiner specifically cites to paragraph 107 of the Wang reference for teaching “a lens system of numerical aperture greater than 0.8 for optical radiation and determining positional coordinate” (emphasis added). But a careful review of the cited paragraph 107 of the Wang reference does not show a teaching or suggestion of a step of obtaining or determining or obtaining positional coordinate of a particle. The Grier and the Wang references, whether taken singly or in combination, fail to disclose, at minimum, the claim element (b) of “obtaining positional co-ordinates, on the wafer surface, for a particle.” Thus, the references cited by the Examiner do not teach every element of claim 1.

Secondly, referring to claim 16, claim 16 recites:

A process for removing contaminant particles from an upward-facing surface of a semiconductor wafer, comprising:

- (a) providing a source of laser light and a lens system capable of focusing said laser light to a focal point;
- (b) *obtaining positional co-ordinates, on the wafer surface, for a set of said particles;*
- (c) performing the sequential steps of:
 - (d) using said positional co-ordinates, placing the lens so that the focal point is directly above a particle of the set at a distance therefrom;

- (e) passing said laser light through the lens at a power level sufficient to form, at said focal point, an optical trap into which said particle is drawn;
- (f) disposing of the particle whereby it is not returned to the wafer surface; and repeating steps ([d]), ([e]), and ([f]) for all other member of the set of particles.

(emphasis added). The step (b) of claim 16 is the same step (b) recited in claim 1. As discussed above in reference to claim 1, the Grier and the Wang references, whether taken singly or in combination, fail to teach or suggest, at minimum, the recited claim element (b). Thus, the references cited by the Examiner do not teach every element of claim 16 either.

Accordingly, contrary to the Examiner's assertion, the Grier and the Wang references, do not disclose the step of "*obtaining positional co-ordinates, on the wafer surface, for a set of said particles*" required by claims 1 and 16 and the references do not obviate the invention recited in claims 1 or 16. *See, In re Royka*, 490 F.2d 981, 180 USPQ2d 580 (CCPA 1974).

Claims 2-8 and 17-23 depend from claims 1 and 16, respectively, and they are non-obvious over Grier and Wang because they depend from a base claim that is non-obvious over the cited references. *In re Fine*, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988), citing *Hartness Int'l v. Simplimatic Eng'g Co.*, 2 USPQ2d 1826, 1831; *In re Abele*, 214 USPQ 682, 689 (CCPA 1982).

Withdrawal of this rejection and reconsideration and allowance of claims 1-8 and 16-23 are respectfully requested.

Claims 6-8 and 17-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In view of the discussion above in reference to the allowability of claims 1 and 16, the applicant believes that it is not necessary to rewrite these claims.

Favorable reconsideration of this application is respectfully requested as it is believed that all outstanding issues have been addressed herein. If the Examiner believes the prosecution of this application would be advanced by a telephone call, the Examiner is invited to contact the applicant's attorney at the telephone number indicated below.

No fee is believed due for the submission of this communication.

Respectfully submitted,

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